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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,361	01/31/2002	Liang-Sheng L. Liao	83483RLO	2925

7590 03/09/2004  
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EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/062,361

Applicant(s)

LIAO ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,6,7,9,10,12,13 and 15-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 and 22 is/are allowed.
- 6) ☒ Claim(s) 1-3,6,7,9,10,12,13,15-20,23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 2, 2004 has been entered.

***Response to Amendment***

2. This Office action is responsive to the amendment filed on February 2, 2004. Claims 1, 9, and 16 were amended. Claims 4, 5, 8, and 11 were canceled. New claims 17-24 were added. Claims 1-3, 6, 7, 9, 10, 12, 13, and 15-24 are pending.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. The rejection of claims 1, 6, 12, 13, and 16 under 35 USC 102(b) as being anticipated by Matsuura et al. (US 5,516,577) set forth in paper no. 4, paragraph 3, is withdrawn due to the amendment of claim 1 requiring at least one metal selected from group 1 through 15 of the Periodic Table of Elements such that the metal has an atomic number of at least 19.

5. The rejection of claims 1, 2, 4, and 12-16 under 35 USC 102(b) as being anticipated by Wakimoto et al. (US 5,739,635) set forth in paper no. 4, paragraph 5, is withdrawn upon reconsideration.

6. The rejection of claims 1-13, 15, and 16 under 35 USC 112, first paragraph, set forth in paragraph 11 of the Office action mailed November 5, 2003 is withdrawn.

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7. Claims 1, 2, 3, 6, 7, 9, 10, 12, 13, and 15-17 are rejected under 35 USC 112, first paragraph, because the specification, while being enabling for some specific materials which are inorganic, does not reasonably provide enablement for all "inorganic materials". The term is considered more broad than what applicant has enabled in the disclosure. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 2, 12, 13, 15-17, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakimoto et al. (US 5,739,635). Wakimoto et al. discloses an organic electroluminescent device comprising an electron injecting layer of alkaline metals and oxides disposed between the emitting layer and the cathode (see abstract). The electron-injecting layer comprises at least one material including Rb and Cs (see col. 2, lines 54-57 and abstract). The electron injection layer reads upon the instant "adhesion-promoting layer". The electron injection layer is 500 angstroms or less (50 nm or less) in thickness and examples describe the thickness from 1 to 22 angstroms (see col. 3, lines 14-15 and Table 2, col. 4) per instant claims 16 and 17. Preferred cathode material includes magnesium and AgMg alloy (see col. 3, lines 17-23) per claims 1, 12, and 13. The emitting layer adjacent the electron injecting layer is comprised of Alq (see col. 3, lines 28-35) per the "electroluminescent medium" and instant claim

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15. Although Wakimoto et al. fails to disclose the purity of a magnesium cathode, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used pure magnesium, because Matsuura et al. clearly discloses magnesium as a desirable material for the cathode and one would expect pure materials to comprise the most efficient electroluminescent device as impurities would interfere with the operation of the cathode.

10. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al. (US 5,516,577). Matsuura et al. discloses an organic electroluminescent device comprising anode/light emitting layer/adhesive layer/cathode (see abstract). The adhesive layer reads upon the instant "adhesion-promoting layer" and the light emitting layer reads upon the instant electroluminescent medium. The adhesive layer comprises compounds such as bis(benzo-8-quinolinol)**zinc** (see col. 17, lines 12-13). The thickness of the adhesive layer is 1-50 nm (see col. 17, lines 54-57). Preferred cathode material is magnesium (see col. 3, lines 11-12). Although Matsuura et al. fails to disclose the purity of a magnesium cathode, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used pure magnesium, because Matsuura et al. clearly discloses magnesium as a desirable material for the cathode and one would expect pure materials to form the most efficient electroluminescent devices as impurities would interfere with the operation of the cathode.

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hung et al. (US 5,776,622). Hung et al. teaches an electroluminescent device comprising a bilayer cathode including a fluoride layer which contacts the electroluminescent layer (see abstract). The fluoride materials may include calcium fluoride, barium fluoride or strontium fluoride (see claim 5) per the instant alkaline earth compound. The conductive layer of the cathode may include

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elemental metals. Although Hung et al. does not explicitly teach pure magnesium alone as the cathode material, it would have been obvious to select magnesium, because magnesium is an alkaline earth metal and Hung et al. teaches the use of elemental metals.

***Allowable Subject Matter***

12. Claims 21 and 22 are allowed for the reasons original claims 9 and 11 were previously indicated as allowable. Claims 3, 6, 7, 9, and 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

13. Applicant's arguments with respect to the rejections over Matsuura et al. and Wakimoto et al. have been considered but are moot in view of the new ground(s) of rejection. The examiner respectfully submits the electron injecting layer of Wakimoto reads upon the "adhesion-promoting layer" as claimed. With regard to Matsuura et al., claims 19 and 20 have been rejected, because Matsuura et al. teaches a zinc organometallic compound between the luminescent layer and the cathode. Organometallic compounds are considered to be *inorganic* metal compounds.

***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is 571-272-1523. The examiner can normally be reached Monday through Friday during normal business hours. Please allow the examiner twenty-four hours to return your call.

If reasonable attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached at 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**DAWN GARRETT**  
**PATENT EXAMINER**

D.G.  
February 27, 2004